

What is claimed is:

- 1 1. A semiconductor device comprising:
2 a voltage node coupled to a first p-type region;
3 a first n-type region having a first side adjoining the first p-type region;
4 a second p-type region having a first side adjoining a second side of the first n-type
5 region;
6 a second n-type region having a first side adjoining a second side of the second p-type
7 region;
8 a clamping circuit intercoupled between the second n-type region and ground; and
9 a switching circuit intercoupled between the second p-type region and ground.
- 1 2. The device of claim 1, further comprising a resistive element intercoupled between
2 the first n-type region and the voltage node.
- 1 3. The device of claim 2, wherein the resistive element comprises a resistor.
- 1 4. The device of claim 1, wherein the voltage node comprises a bond pad.
- 1 5. The device of claim 1, wherein the switching circuit comprises a resistor.
- 1 6. The device of claim 1, wherein the switching circuit comprises a transistor.
- 1 7. The device of claim 6, wherein the transistor comprises an NPN transistor.

1 8. The device of claim 6, wherein the transistor comprises an NMOS transistor.

1 9. The device of claim 1, wherein the clamping circuit comprises a transistor.

1 10. The device of claim 9, wherein the transistor comprises an NPN transistor.

1 11. The device of claim 9, wherein the transistor comprises an NMOS transistor.

1 12. The device of claim 1, wherein the clamping circuit comprises a diode.

1 13. A method of providing a semiconductor device utilizing a silicon controlled rectifier,
2 the method comprising the steps of:

3 providing a semiconductor device having a silicon controlled rectifier formed therein;

4 providing a clamping structure, coupled to the silicon-controlled rectifier, adapted to
5 prevent a p-n junction within the silicon controlled rectifier from retaining a forward bias;

6 providing a switching structure, coupled to the p-type portion of the p-n junction and
7 adapted to ground the p-type portion during normal operation of the semiconductor device.

1 14. The method of claim 13, wherein the step of providing the switching structure
2 comprises providing a resistor.

1 15. The method of claim 13, wherein the step of providing the switching structure
2 comprises providing a transistor.

1 16. The method of claim 15, wherein the step of providing the transistor further
2 comprises providing an NPN transistor.

1 17. The method of claim 15, wherein the step of providing the transistor further
2 comprises providing an NMOS transistor.

1 18. The method of claim 13, wherein the step of providing the clamping structure
2 comprises providing a diode.

1 19. The method of claim 13, wherein the step of providing the clamping structure
2 comprises providing a transistor.

1 20. The method of claim 19, wherein the step of providing the transistor further
2 comprises providing an NPN transistor.

1 21. The method of claim 19, wherein the step of providing the transistor further
2 comprises providing an NMOS transistor.

1 22. A system for providing a electrostatic discharge protection in a semiconductor device,
2 utilizing a silicon controlled rectifier, the system comprising:

3 a silicon controlled rectifier having a first p-type region coupled to a voltage node, a
4 first n-type region having a first side adjoining the first p-type region, a second p-type region

5 having a first side adjoining a second side of the first n-type region, and a second n-type
6 region having a first side adjoining a second side of the second p-type region;

7 a clamping structure, intercoupled between the second n-type region and ground, and
8 adapted to prevent the junction between the second p-type region and the second n-type
9 region from retaining a forward bias ; and

10 a switching structure, intercoupled between the second p-type region and ground, and
11 adapted to ground the second p-type region during normal operation of the semiconductor
12 device.